



OFFICE OF INSPECTOR GENERAL
U.S. Department of Energy

AUDIT REPORT

DOE-OIG-20-42

May 2020

**QUALITY ASSURANCE MANAGEMENT
AT THE INTEGRATED WASTE
TREATMENT UNIT**



Department of Energy
Washington, DC 20585

May 21, 2020

MEMORANDUM FOR THE MANAGER, IDAHO OPERATIONS OFFICE

A handwritten signature in black ink, appearing to read "Jack Rouch", written over a horizontal line.

FROM: Jack Rouch
Deputy Assistant Inspector General
for Audits
Office of Inspector General

SUBJECT: INFORMATION: Audit Report on "Quality Assurance
Management at the Integrated Waste Treatment Unit"

BACKGROUND

The Integrated Waste Treatment Unit (IWTU) is a facility at the Idaho National Laboratory Site designed to treat 900,000 gallons of liquid radioactive sodium-bearing waste, package the treated waste into stainless steel canisters, and store it in above-ground vaults. The IWTU is a Hazard Category 2 nuclear facility, which has the potential for significant onsite radiological consequences such as radioactive exposure to the public and injury to workers. The IWTU contains safety-significant systems, structures, and components designed to protect against these consequences. Since June 2016, Fluor Idaho, LLC (Fluor Idaho) has managed the cleanup work at the Idaho National Laboratory Site. This includes a requirement to make the IWTU fully operational for processing specified waste through the facility and storing the end product in onsite canisters and vaults. Prior to June 2016, CH2M-WG Idaho, LLC (CWI) managed the cleanup work at the Idaho National Laboratory Site, including design, construction, and operations of the IWTU. Upon initial startup in June 2012, IWTU experienced a system pressure event leading to the shutdown of the facility. Subsequent to the event, numerous design changes and modifications were made to prepare for eventual operations. Currently, the IWTU is still not operational.

The Department of Energy's contracts with Fluor Idaho and CWI required compliance with Department Order 414.1D, *Quality Assurance*, which requires the development and use of an approved quality assurance program. Both contractors adopted the American Society of Mechanical Engineers' (ASME) *Quality Assurance Requirements for Nuclear Facility Applications*, 2008 edition and addenda through 2009 (NQA-1) as the standard. NQA-1 outlines requirements for the establishment and execution of quality assurance programs for nuclear facilities. The Idaho Operations Office provides oversight to ensure proper implementation of quality assurance at IWTU. Due to past quality assurance issues during construction of the

IWTU, resulting in cost increases and project delays, and challenges with operating the facility, we initiated this audit to determine whether the Department managed quality assurance requirements for procurements at the IWTU in accordance with NQA-1.

RESULTS OF AUDIT

We found that the Department did not always manage quality assurance requirements for procurements at the IWTU in accordance with NQA-1. Specifically, we found that the Department's IWTU contractors, Fluor Idaho and CWI, did not always:

- Identify the necessary quality assurance program requirement in safety-significant procurements¹;
- Evaluate suppliers' capabilities to meet quality assurance requirements when providing safety-significant items; and
- Verify the reliability of suppliers' certification systems when accepting items through a Certificate of Conformance².

We concluded that the Idaho Operations Office's oversight contributed to the issues identified. Specifically, the Idaho Operations Office's oversight of quality assurance activities at the IWTU did not initially provide sufficient depth to ensure Fluor Idaho and CWI effectively implemented their approved quality assurance programs. We noted that the Idaho Operations Office modified its assessment approach in September 2017 to help ensure its reviews were more in-depth and ensure future compliance with quality assurance requirements. To its credit, an Idaho Operations Office assessment from August 2018 identified issues similar to those we identified in our audit. However, despite the assessment being scheduled prior to the start of our audit, it was not conducted until after we brought the issues identified in our report to the Idaho Operations Office's attention. Because the assessment was not conducted until after we brought the issues to the Idaho Operations Office's attention, we were not able to determine whether the Idaho Operations Office would have identified the issues on its own or assess the effectiveness of the modified assessment approach during our audit.

Ineffective implementation of quality assurance requirements limits the Department's ability to provide reasonable assurance that it has maintained safe operations at the IWTU. Inadequate supplier evaluations and not imposing applicable quality assurance requirements may increase the risk of awarding procurements to suppliers that cannot meet contract requirements and could result in safety-significant systems, structures, and components not meeting the intended safety functions. We made recommendations to improve controls and oversight over IWTU's quality assurance activities.

¹ Safety-significant structures, systems, and components are those whose failure could impact worker safety, such as exposure to radiological and hazardous materials, and require the application of NQA-1.

² A Certificate of Conformance is a document certifying the degree to which items meet specified requirements. NQA-1 permits their use as a method for accepting items from suppliers.

MANAGEMENT RESPONSE

Management concurred with each of the report's recommendations. The Idaho Operations Office stated that it has already made adjustments and improvements to its oversight program as stated in the report. In addition, the Idaho Operations Office stated that it has and will ensure the corrective actions to the issues identified are adequately and effectively implemented. Also, the Idaho Operations stated that Fluor Idaho has conducted an extent of condition review of the issues identified and determined that the issues were not systematic. The Idaho Operations Office will continue to closely monitor Fluor Idaho's efforts and ensure they are adequate and effective.

Management's comments are generally responsive to our recommendations. We acknowledge that the Idaho Operations Office asserts that its oversight program was not causal to the contractors' noncompliances. However, we concluded that the Idaho Operations Office's oversight contributed to the issues by not identifying and correcting the issues until after we brought them to management's attention.

Management's comments are included in Appendix 3.

cc: Chief of Staff
Senior Advisor for Environmental Management to the Under Secretary for Science

QUALITY ASSURANCE MANAGEMENT AT THE INTEGRATED WASTE TREATMENT UNIT

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QUALITY ASSURANCE MANAGEMENT AT THE INTEGRATED WASTE TREATMENT UNIT

BACKGROUND

To meet its mission, the Integrated Waste Treatment Unit (IWTU) uses items and services that must meet quality assurance standards. By contract, Fluor Idaho, LLC (Fluor Idaho) and CH2M-WG Idaho, LLC (CWI) follow the American Society of Mechanical Engineers' (ASME) *Quality Assurance Requirements for Nuclear Facility Applications*, 2008 edition and addenda through 2009 (NQA-1). Part I of NQA-1 provides 18 requirements for the establishment and execution of quality assurance programs for nuclear activities. Each of the 18 requirements includes a summary and introductory paragraph (paragraph 100) for the mandatory, detailed criteria included in each requirement.

The mandatory, detailed criteria are essential to implementation of an NQA-1 based quality assurance program. NQA-1 requires a supplier evaluation prior to a subcontract award that includes an assessment of the supplier's capability to provide the items or services in accordance with the requirements of the procurement documents. In addition, NQA-1 provides guidance that supplier evaluations should be performed on at least a triennial basis. Further, the Department of Energy's Guide 414.1-2B, *Quality Assurance Program Guide*, states that qualified suppliers' performances should be audited every third year unless events warrant more frequent assessment. NQA-1 includes additional requirements for procurement documentation. In particular, it states that quality assurance program requirements shall be specified in procurement documents and consistent with the procurement's scope of work. NQA-1 also provides specific requirements for accepting items or services through a Certificate of Conformance.

The Department's Office of Environmental Management (Environmental Management) developed a quality assurance program that applies to all Environmental Management contractors and provides expectations for implementing quality assurance across the complex. Environmental Management's quality assurance program adopts NQA-1 as its standard. Requests to use other standards to demonstrate implementation of Environmental Management's quality assurance program must include detailed justification.

DETAILS OF FINDINGS

Quality Assurance Management

We found weaknesses in the Department's management of quality assurance requirements at the IWTU. In particular, we found weaknesses in the following areas:

- Identification of the requisite quality assurance program requirement in safety-significant procurement documents¹;

¹ Safety-significant structures, systems, and components are those whose failure could impact worker safety, such as exposure to radiological and hazardous materials, and require the application of NQA-1.

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- Evaluation of suppliers' capabilities to meet quality assurance requirements when providing safety-significant items; and
 - Reliability of suppliers' certification systems when accepting items through a Certificate of Conformance².

Identification of Quality Assurance Program Requirement

Fluor Idaho and CWI did not always specify the appropriate quality assurance program requirement in procurements of safety-significant items. These procurements require the application of NQA-1. Without specifying NQA-1 as a requirement in safety-significant procurement documents, there is no guarantee that the subcontractor will perform in accordance with NQA-1 and satisfy the stringent requirements for nuclear facilities. We identified instances where Fluor Idaho and CWI did not specify a quality assurance program requirement, specified only paragraph 100 of the applicable NQA-1 requirements, and did not specify NQA-1 in procurement documents when applicable.

We identified 3 out of 31 procurements that did not include a quality assurance program requirement in the procurement documents. Specifically, we found two Fluor Idaho procurements and one CWI procurement that did not include a quality assurance program requirement. NQA-1 requires that quality assurance program requirements are specified in procurement documents. In addition, Fluor Idaho's and CWI's quality assurance programs specify that safety-significant procurements contain a quality clause establishing NQA-1 as the quality assurance program requirement. The two Fluor Idaho procurements, which were for weld wire and silicone sheeting, did not include quality assurance program requirements within the procurement documents. Instead, the procurements specified other requirements, including the need to flow-down procurement requirements to lower-tier suppliers and to perform inspections and tests to verify product compliance with physical and chemical characteristics.

In CWI's procurement, it required a supplier to submit a Certificate of Conformance and provide a certified material test report for a gasket that supports a system designed to prevent facility worker exposure to hazardous gas. However, the procurement documents did not specify the required quality assurance program. Without clearly identifying quality assurance program requirements in procurement documents, there is limited assurance that the supplier will implement the appropriate quality assurance program and satisfy the applicable quality assurance requirements. When we presented these instances to Fluor Idaho officials during the course of the audit, they recognized these instances as an oversight and agreed that quality assurance program requirements should have been specified in the procurements.

In addition, we identified 6 out of 31 safety-significant procurements that only contained paragraph 100 of the applicable NQA-1 requirements. Specifically, four Fluor Idaho procurements and two CWI procurements for items such as gaskets, valve packing, a butterfly valve, a position transmitter, and a valve adapter only contained paragraph 100 of NQA-1. The

² A Certificate of Conformance is a document certifying the degree to which items meet specified requirements. NQA-1 permits their use as a method for accepting items from suppliers.

ASME Committee on Nuclear Quality Assurance's *NQA Technical Interpretation Record #10-1365* states that paragraph 100 is a summary and introductory paragraph for additional mandatory criteria contained in each requirement, and that it is insufficient to invoke only paragraph 100 and expect results equivalent to specifying all of the applicable requirements. When we brought these instances to Fluor Idaho's attention, quality assurance personnel stated that it implemented the NQA-1 requirements using a graded approach³. Although Environmental Management allows contractors to use a graded approach, it does not consider the application of only paragraph 100 to be sufficient to apply NQA-1. By specifying only paragraph 100 of the applicable NQA-1 requirements, it elevates the risk that the additional mandatory criteria is not met, potentially resulting in items not performing their intended safety function.

Further, we found that 11 out of 31 safety-significant procurements did not require NQA-1. Specifically, five CWI procurements identified International Organization for Standardization 9001 (ISO 9001) as the quality assurance program requirement. In addition, four Fluor Idaho procurements and two CWI procurements identified other ASME industry-type certifications as the requisite quality assurance programs. Fluor Idaho's and CWI's quality assurance programs require implementation of NQA-1 for safety-significant procurements. According to Environmental Management's Quality Assurance Program, if deviation from the NQA-1 standard is desired, the entity must demonstrate equivalency and obtain prior approval from Environmental Management's Office of Standards and Quality Assurance. However, Fluor Idaho and CWI did not seek approval prior to deviating from the NQA-1 standard, nor did they demonstrate equivalency in these instances. When we brought this issue to Fluor Idaho's attention, officials confirmed that such approval was not requested or granted, and agreed that NQA-1 should have been specified in the procurements. Fluor Idaho officials further stated that this was an implementation weakness and not an intentional deviation from quality assurance program requirements.

Supplier Evaluations

Fluor Idaho and CWI did not always effectively evaluate suppliers of safety-significant items. Specifically, Fluor Idaho and CWI: (1) awarded work prior to evaluating the suppliers' capabilities to meet NQA-1; (2) conducted evaluations that did not address all applicable NQA-1 requirements; (3) evaluated suppliers to standards less stringent than NQA-1; and (4) performed evaluations without obtaining sufficient objective evidence.

Supplier Capabilities

CWI awarded work for 3 out of the 14 suppliers we reviewed prior to evaluating the suppliers' capabilities to meet NQA-1. In one instance, CWI awarded a safety-significant procurement to a supplier prior to evaluating the supplier's capability to meet the requisite quality assurance requirements. In this instance, CWI awarded the procurement, which was for reinforcing steel bars, in September 2014, but did not evaluate the supplier until January 2015. By not evaluating

³ A graded approach is a process by which the level of analysis, extent of documentation, and degree of rigor of process control are applied based on the significance, importance to safety, life-cycle state of a facility or work, or programmatic mission.

a supplier prior to contract award, CWI had limited assurance that the supplier was capable of providing items or services that met specified requirements and were suitable for the nuclear environment.

In addition, CWI did not always continue to evaluate its suppliers' capabilities to meet quality assurance requirements and implement the applicable quality assurance programs after award. NQA-1 requires audits to verify compliance with quality assurance program requirements and to determine the effectiveness of the program. Furthermore, NQA-1 and the Department's Guide 414.1-2B, *Quality Assurance Program Guide*, provide guidance that supplier audits should be performed at least every 3 years. However, we identified an instance where CWI did not ensure the supplier continued to implement its quality assurance program and meet quality assurance requirements before awarding additional work. Specifically, CWI audited a supplier in May 2011 for o-rings used for a storage canister intended to prevent facility worker exposure to radioactive materials; however, CWI did not audit this supplier again until February 2015, more than 4 years since the last audit. In this example, CWI awarded a safety-significant procurement to the supplier after the 3-year audit timeframe but before performing the subsequent audit.

Applicable NQA-1 Requirements

Fluor Idaho and CWI conducted evaluations that did not assess all of the applicable NQA-1 requirements for 6 out of the 14 suppliers we reviewed. For example, we found that Fluor Idaho did not assess a supplier according to the additional, mandatory requirements of NQA-1 beyond paragraph 100. In addition, CWI did not assess a supplier beyond paragraph 100. These suppliers provided safety-significant items such as gaskets and a position transmitter necessary to prevent gas exposure to the workers. Fluor Idaho stated that it determined only paragraph 100 was necessary. However, as previously mentioned, in March 2012 the ASME Committee on Nuclear Quality Assurance stated that applying only paragraph 100 of the applicable requirements is not sufficient to claim credit for implementing an NQA-1 based quality assurance program. It further stated that an organization invoking only paragraph 100 of a requirement cannot expect results equivalent to specifying all paragraphs of a requirement. When we discussed this issue with Fluor Idaho officials in December 2017, officials were not aware of the ASME interpretation.

In addition, CWI did not evaluate a supplier's capability to perform commercial grade dedications in accordance with NQA-1. Commercial grade dedication is a process to provide reasonable assurance that items not designed and manufactured under an NQA-1 program are deemed equivalent to those provided under an NQA-1 program. In this instance, the safety-significant steam feed valve supplier performed commercial grade dedications on the components provided by sub-tier suppliers. CWI subsequently accepted the valve without evaluating the valve supplier's capability to properly perform commercial grade dedications. By not evaluating the supplier's commercial grade dedication process, there is limited assurance that the supplier performed acceptable commercial grade dedications and that the components will perform their intended safety function.

Also, CWI did not always adequately evaluate its suppliers' capabilities to use sub-tier suppliers to meet quality assurance requirements. We identified four suppliers that procured safety-significant items from sub-tier suppliers; however, CWI had not evaluated its suppliers' abilities to procure items from sub-tier suppliers and ensure quality assurance requirements were satisfied. In one instance, a CWI supplier procured a valve designed to prevent facility worker exposure to hazardous materials from a sub-tier supplier that then obtained a number of valve components from other sub-tier suppliers. Although the sub-tier suppliers provided various certifications, by not evaluating its suppliers' capabilities to procure items from sub-tier suppliers and ensure quality requirements were met, it limits CWI's assurance that quality assurance requirements were met.

Appropriate Quality Assurance Standard

Fluor Idaho and CWI evaluated and qualified 5 out of 14 suppliers of safety-significant items to standards less stringent than NQA-1. In particular:

- CWI evaluated and qualified two suppliers to the ISO 9001 standard, and Fluor Idaho evaluated and qualified one supplier to the ISO 9001 standard. Although ISO 9001 is a nationally recognized quality standard, it primarily focuses on quality as it relates to enhancing customer satisfaction. In contrast, NQA-1 focuses on quality to ensure nuclear safety. According to NQA-1, differences exist between NQA-1 and ISO 9001 standards and care should be taken to ensure that NQA-1 requirements are satisfied when relying on ISO 9001. For example, ISO 9001 requirements relating to (1) audits, and (2) training and qualifications of personnel are not as rigorous as NQA-1.
- Fluor Idaho and CWI each evaluated and qualified a supplier based on ASME certifications associated with the ASME Boiler and Pressure Vessel Code. The ASME certificates are intended for the pressure equipment industry and to certify that the quality control systems comply with the standard; however, ASME certificates do not certify a supplier's capability to meet nuclear quality assurance requirements. In addition, the Nuclear Regulatory Commission issued updated guidance in 2015, which stated that performing an audit to applicable nuclear industry standards, such as NQA-1, is necessary to ensure that suppliers are effectively implementing nuclear quality assurance programs.

Furthermore, according to Environmental Management's Quality Assurance Program, deviation from the NQA-1 standard is permitted; however, entities must demonstrate equivalency to NQA-1 and obtain approval by Environmental Management's Office of Standards and Quality Assurance. The approval process includes developing a risk-informed evaluation that clearly demonstrates any identified gaps between the quality assurance standard and NQA-1 in order to demonstrate that any identified risks do not impact the quality of work, products, or services. Fluor Idaho and CWI did not demonstrate equivalency or obtain the necessary approval for the five suppliers evaluated to standards other than NQA-1. Without proper evaluation and approval when deviating from the NQA-1 standard, safety-significant items are at risk of not successfully performing their intended nuclear safety functions.

When we discussed our observations with Fluor Idaho, quality assurance officials acknowledged that the suppliers should have been evaluated based on NQA-1 requirements and committed to reevaluating the suppliers according to NQA-1 requirements. In addition, Fluor Idaho officials stated that this was an implementation weakness, not an intentional deviation from the approved NQA-1-based quality assurance program; therefore, corrective actions have been taken and the performance of updated evaluations is ongoing.

Insufficient Objective Evidence

Fluor Idaho and CWI performed evaluations without obtaining sufficient objective evidence. Out of the 14 suppliers we reviewed, Fluor Idaho and CWI each qualified one supplier without obtaining sufficient objective evidence that the suppliers could and/or did effectively implement the applicable quality assurance programs. NQA-1 defines objective evidence as any documented statement of fact, other information, or record pertaining to the quality of an item or activity based on observations, measurements, or tests that can be verified. However, in one evaluation, CWI included only references to the section of the supplier's quality manual that mentioned the NQA-1 requirement, not objective evidence to demonstrate effective implementation of the program. Similarly, in another instance, Fluor Idaho's supporting documentation for the supplier evaluation included verbatim language from the supplier's quality assurance manual but not objective evidence to demonstrate effective implementation of the program.

Certificate of Conformance

Fluor Idaho and CWI did not always verify suppliers' certification systems could effectively validate and certify that items met specified requirements. Specifically, we identified 6 of 14 suppliers for both Fluor Idaho and CWI whose certification systems were not verified using NQA-1 requirements. These six suppliers provided certificates of conformance for safety-significant items such as butterfly valves, gaskets, corrosion coupons, rebar, and weld wire. NQA-1 permits the use of a Certificate of Conformance, which is a document certifying the degree to which items meet specified requirements, as a method for accepting items from suppliers. However, when accepting a Certificate of Conformance, NQA-1 requires that means shall be provided to verify the validity of certificates and the effectiveness of the certification system by performing audits of the supplier, independent inspections, or tests of the items. When we reviewed Fluor Idaho's and CWI's evaluations for these suppliers, we were unable to identify objective evidence of reviews of the suppliers' certification systems. Without validating the effectiveness of suppliers' certification programs, the risk increases that purchased items do not meet quality requirements.

Idaho Operations Office Oversight

We concluded that the Idaho Operations Office's oversight of IWTU quality assurance activities contributed to the issues identified in our report. In particular, the Idaho Operations Office's oversight activities did not initially provide sufficient depth to ensure Fluor Idaho and CWI effectively implemented their approved quality assurance programs. The Department's site offices have flexibility to vary the level of oversight provided according to the relative

importance of the work, the contractor's past performance, complexity of the products or services, and relative risk to future work. Every quarter, the Idaho Operations Office evaluated select NQA-1 requirements to ensure that each requirement was reviewed at least every 3 years. In addition, the Idaho Operations Office annually performed a high-level assessment of the contractors' quality assurance programs based on Department Order 414.1D, *Quality Assurance*, criteria. According to the Idaho Operations Office, its oversight included the review and approval of the contractors' quality assurance programs as written, with risk-based oversight of program implementation through audits and surveillances. Further, the Idaho Operations Office's oversight model included increased contractor accountability and reliance on the contractors to perform self-assessments to ensure effective implementation of their quality assurance programs but is not intended to identify all instances of noncompliance. Nevertheless, the Idaho Operations Office is responsible for oversight of quality assurance at the IWTU and had not identified the issues outlined in our report until after we brought them to its attention.

Quality assurance related issues at the IWTU extend back to its construction. In 2013, a CWI lessons learned report, which focused on the construction of the IWTU, identified significant quality assurance issues. Some of the issues were similar to those we identified in our review, such as awarding contracts to unqualified vendors. In addition, the report stated that the contractor did not implement a quality program as outlined in the quality program plan. Given the IWTU's quality assurance issues during construction, the issues we identified despite the Idaho Operations Office's efforts, and the importance of the IWTU mission, we concluded that more thorough and/or restructured oversight of quality assurance activities at the IWTU is warranted. Possible changes to ensure effective implementation of quality assurance requirements at the IWTU could include things such as more focused audits and surveillances by the Idaho Operations Office.

To its credit, the Idaho Operations Office has made efforts to improve its oversight. For example, beginning in September 2017, the Idaho Operations Office modified the way it conducts audits and surveillances for NQA-1 requirements. Specifically, the Idaho Operations Office cross-checked the Department Order 414.1D criteria to applicable NQA-1 requirements in order to accomplish more in-depth reviews. In addition, in August 2018, the Idaho Operations Office completed an assessment of Fluor Idaho's implementation of select quality assurance requirements based on Department Order 414.1D criteria and select NQA-1 requirements. The assessment identified findings similar to those we identified during our review. In particular, the assessment noted weaknesses in Fluor Idaho's flow-down of NQA-1 requirements, evaluation of suppliers, and evaluation of suppliers' certification systems. Although the Idaho Operations Office had this assessment scheduled before we started our review, it was not conducted until after we brought the issues identified in our review to its attention. Therefore, it is unknown whether the Idaho Operations Office's assessment would have identified the issues on its own, and it is too early to evaluate the effectiveness of the implemented changes. As a result of the Idaho Operations Office's assessment, Fluor Idaho developed and completed corrective actions to address the findings identified in the assessment.

Impact

The weaknesses identified in our report limit the assurance that the items and services obtained for the IWTU by Fluor Idaho and CWI met or will meet the requirements for safe operations. Specifically, the weaknesses of not always applying the applicable NQA-1 requirements and insufficient evaluation of suppliers increases the risk of receiving items that do not meet quality requirements. This may create conditions in which safety-significant structures, systems, and components do not perform their intended safety function and compromise safe operations. As determined in CWI's 2013 lessons learned report on the IWTU construction, quality assurance issues can result in increased costs and project delays. Currently, the IWTU is still not operational and more than 7 years behind schedule. Due to the importance of the IWTU's mission and in light of the previously identified quality assurance weaknesses, it is imperative that the Idaho Operations Office ensures that the IWTU meets quality assurance requirements to help minimize further delays and assist the Department in meeting its cleanup commitments with the State of Idaho.

RECOMMENDATIONS

To ensure that Fluor Idaho, the current IWTU contractor, manages the quality assurance requirements for the IWTU, we recommend that the Manager for the Idaho Operations Office:

1. Evaluate the Idaho Operations Office's oversight process in order to enable it to promptly detect weaknesses in the implementation of quality assurance procedures and make changes as necessary;
2. Ensure that corrective actions taken by Fluor Idaho to address the issues identified in our report and in the Idaho Operations Office's assessment are adequate and effectively implemented; and
3. Perform an extent of condition review to determine if issues identified in our judgmental sample are systemic and determine the impact on current and future operations of the IWTU.

MANAGEMENT RESPONSE

Management concurred with the report's recommendations and identified corrective actions that were completed, initiated, and planned to address the issues identified in the report. Specifically, the Idaho Operations Office provided a summary of corrective actions taken by Fluor Idaho to address implementation inadequacies. According to the Idaho Operations Office, these corrective actions have been entered into Fluor Idaho's corrective action system and will be verified for adequacy and effectiveness. In addition, Fluor Idaho performed an extent of condition review to determine the breadth and depth of the problems identified and determined that the issues were not systemic. Further, the Idaho Operations Office stated that it will continue to monitor Fluor Idaho's effort to address the issues identified in the report. However, the Idaho Operations Office disagreed that its oversight program was causal to the identified contractor's noncompliances. Despite its assertion, the Idaho Operations Office agreed to evaluate its oversight process and stated that it has already made adjustments and improvements to its oversight program, as noted in the report.

Management comments are included in Appendix 3.

AUDITOR COMMENTS

Management's comments and proposed corrective actions were generally responsive to our recommendations. We acknowledge that the Idaho Operations Office asserts that its oversight program was not causal to the contractors' noncompliances. However, we concluded that the Idaho Operations Office's oversight activities contributed to the issues identified because its oversight had not identified and corrected the contractors' noncompliances until after we brought them to management's attention.

OBJECTIVE, SCOPE, AND METHODOLOGY

Objective

We conducted this audit to determine whether the Department of Energy managed quality assurance requirements for procurements at the Integrated Waste Treatment Unit (IWTU) in accordance with the American Society of Mechanical Engineers' *Quality Assurance Requirements for Nuclear Facility Applications*, 2008 edition and addenda through 2009 (NQA-1).

Scope

The audit was performed from September 2017 to October 2019 at the Idaho Operations Office and Idaho National Laboratory Site, located near Idaho Falls, Idaho. The audit scope included procurements issued during fiscal years 2012 through 2017. We conducted this audit under Office of Inspector General project number A17ID047.

Methodology

To accomplish our audit objective, we:

- Reviewed Federal laws and regulations, Department of Energy regulations and guidance, and contract provisions related to nuclear safety management and quality assurance;
- Reviewed Fluor Idaho, LLC's and CH2M-WG Idaho, LLC's Quality Assurance Programs and associated implementing procedures;
- Interviewed key Department Officials, IWTU contractors, and Idaho Operations Office personnel;
- Judgmentally selected 31 procurements from a universe of 127 safety-significant procurements during fiscal years 2012 through 2017 in order to determine whether IWTU contractors: (1) adequately evaluated suppliers for the ability to provide the item or service; (2) flowed down quality assurance requirements; and (3) adequately managed receipt inspections and acceptance. A non-statistical sample design was chosen with the intent to isolate procurements with the highest safety risk. Because the selection was based on a judgmental sample, results and overall conclusions cannot be projected to the entire population or universe of procurements subject to the audit; and
- Reviewed prior reports issued by the Office of Inspector General, Government Accountability Office, and the Idaho Operations Office.

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objective. We believe that the evidence obtained provides a reasonable basis for our

findings and conclusions based on our audit objective. The audit included tests of internal controls and compliance with laws and regulations to the extent necessary to satisfy the audit objective. Because our review was limited, it would not necessarily have disclosed all internal control deficiencies that may have existed at the time of our audit. We relied on computer-processed data to satisfy our objective. Based on our comparison of computer-processed data to supporting documents, we determined that the data was sufficiently reliable.

Management waived the exit conference on April 21, 2020.

PRIOR REPORTS

- Audit Report on [*Department of Energy's Quality Assurance: Commercial Grade Dedication of Items Relied on for Safety*](#) (DOE-OIG-19-30, May 2019). The audit identified weaknesses in the implementation of commercial grade dedication procurements at the Department of Energy's Waste Treatment and Immobilization Plant and Salt Waste Processing Facility. Specifically, our review identified weaknesses in the dedication acceptance process performed in accordance with the American Society of Mechanical Engineers' *Quality Assurance Requirements for Nuclear Facility Applications* and the Department's guidance. Additionally, the audit identified weaknesses in the selection and/or implementation of the methods of acceptance to verify critical characteristics. The issues identified were the result of weaknesses in the Department's oversight. In particular, the Department did not ensure consistent oversight across the complex. Also, the contractors did not effectively implement their quality assurance programs.
- Audit Report on [*Quality Assurance Management at the Waste Isolation Pilot Plant*](#) (DOE-OIG-17-07, September 2017). The audit found that the Waste Isolation Pilot Plant had not always effectively managed quality assurance requirements. Specifically, the audit found that the Waste Isolation Pilot Plant did not always effectively perform commercial grade dedications of items relied on for safety, evaluate suppliers' abilities to meet quality assurance requirements prior to and after contract award, identify the appropriate quality assurance requirements in contract documents, and maintain adequate document control of quality assurance documents. The weaknesses were attributable to limited oversight by the Carlsbad Field Office. In particular, although the Carlsbad Field Office provided oversight of quality assurance activities through audits and surveillances, it was determined that, since May 2013, its oversight was limited and did not identify these weaknesses until after the issues were brought to the attention of Carlsbad Field Office management.
- Audit Report on [*Quality Assurance for River Corridor Closure Contract Procurements*](#) (OAI-M-17-05, February 2017). The audit report noted instances where Washington Closure Hanford, LLC (WCH) did not effectively manage quality assurance in its procurements. Specifically, the report identified weaknesses in how WCH flowed down quality assurance requirements in its subcontracts and in subsequent evaluations used to determine whether subcontractors had the capability to implement an American Society of Mechanical Engineers' *Quality Assurance Requirements for Nuclear Facility Applications* quality assurance program. In addition, the report noted that WCH did not ensure that staff augmentation contracts contained requirements to perform work under WCH's quality assurance program. The issues identified were attributed to weaknesses in WCH's implementation of its American Society of Mechanical Engineers' *Quality Assurance Requirements for Nuclear Facility Applications* quality assurance program.

- Audit Report on the [*Department of Energy's Quality Assurance: Design Control for the Waste Treatment and Immobilization Plant at the Hanford Site*](#) (DOE/IG-0894, September 2013). The audit found significant shortcomings in the Department's process for managing the design and fabrication changes of waste processing equipment procured for the Waste Treatment and Immobilization Plant. Specifically, the Department had not ensured that Bechtel National, Inc. (Bechtel): (1) subjected design changes requested by suppliers to the required review and approval by Bechtel's Environmental & Nuclear Safety Group, the organization responsible for ensuring that design changes do not impact facility safety; and (2) properly verified that deviations from design requirements that could affect nuclear safety were implemented, and Bechtel could not demonstrate that it had verified suppliers' actions to address deviations from design. The weaknesses identified were attributed to the Department's oversight of Bechtel's quality assurance program, which lacked focus. The depth and breadth of the Department's oversight was not sufficient to identify weaknesses in the implementation or adequacy of Bechtel's procedures.

MANAGEMENT COMMENTS



Department of Energy

Idaho Operations Office

February 20, 2020

MEMORANDUM FOR MICHAEL FREEMAN
TEAM LEADER
OFFICE OF INSPECTOR GENERAL

FROM: ROBERT BOSTON 
MANAGER

SUBJECT: Response to the Draft Audit Report "Quality Assurance
Management at the Integrated Waste Treatment Unit"
(CLN200610)

Thank you for providing a draft copy of the Office of Inspector General (OIG) report "Quality Assurance Management at the Integrated Waste Treatment Unit (IWTU). The Department of Energy, Idaho Operations Office (DOE-ID) and the Financial Policy and Audit Resolution Controls have reviewed the draft report.

The Draft OIG Audit Report on Quality Assurance Management at the Integrated Waste Treatment Unit "attributed the issues we identified to the Idaho Operations Office's oversight." The OIG concluded that DOE-ID oversight at IWTU "did not provide sufficient depth to allow it to initially identify weakness." The OIG further acknowledged that "the Idaho Operations Office modified its assessment approach in September 2017 to help ensure its reviews were more in-depth."

While the OIG's focus on a single facility in the performance of this comprehensive review of the quality assurance and procurement requirements provided DOE-ID with valuable insight into areas at IWTU, DOE-ID believes that OIG assertions of weakness in the DOE-ID oversight process being causal to the identified non-compliances in the Idaho Cleanup Project (ICP) Core contractor QA processes are unsubstantiated. In the ICP Core contract, the contractor is responsible for implementation and management of a compliant QA program, including self-identification of non-compliances and areas requiring additional management focus. Federal oversight processes and resources ensure development of compliant safety management programs such as QA, and provide risk-based oversight of program implementation. It is not the intent that federal oversight would identify all instances of non-compliance.

DOE-ID conducts oversight planning, scheduling and execution pursuant to DOE O 226.1B - Implementation of Department of Energy Oversight Policy, and per DOE-ID procedures 03.PD.04, Contract Oversight, 03.WI.04.01, Oversight Planning and Scheduling, and 03.WI.04.02, Conduct of Oversight. DOE-ID applies oversight methodologies to increase the effective execution of performance-based results in oversight activities, ensuring that oversight is graded to risk, thereby increasing

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contractor accountability, increasing the utilization of systems validation versus transaction verification, validating system integrity and effectiveness, and providing for a deliberate, consistent approach for all DOE-ID oversight activities. Oversight of IWTU has been, and will continue to be considered during the oversight planning and scheduling process for the contractor activities that encompass the ICP contract. The OIG has acknowledged that “in order to accomplish more in-depth reviews” DOE-ID “has made efforts to improve its oversight” since at least 2017. These improvements are provided in the attachment to this letter.

If you have any questions, please contact Emily Clemens, DOE-ID Audit Liaison, at 208-526-1739.

Attachment

cc: Audit Resolution Specialist, Office of Financial Policy and Audit Resolution (CF-20)
Audit Liaison, Office of Environmental Management (EM-5.112)

FEEDBACK

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